

REMARKS

The Final Office Action mailed August 7, 2008 has been carefully considered. Within the Office Action Claims 82-92 and 102-105 have been rejected. The Applicants have amended Claims 82 and 90 and have cancelled Claim 91. The Applicants reserve the right to further pursue the cancelled claims in a continuation and/or divisional application as well as for appeal purposes. In addition, the Applicants have added new Claim 106. Reconsideration in view of the following remarks is respectfully requested.

Rejection under U.S.C. § 102

Claims 82-88, 90-92 and 102-105 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by the article by Adelstein et al. entitled “Design and Implementation of a Force Reflecting Manipulation for Manual Control Research” (hereinafter “Adelstein”). The Applicants respectfully traverse.

According to the M.P.E.P., a claim is anticipated under 35 U.S.C. § 102(a), (b) and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Adelstein discloses a force reflecting interface having a two degrees of freedom manipulandum based on a spherical 5R closed chain linkage that joins the output of two DC motors to a handle grasped by the user. The linkage configurations shown in Figures 1-4 show various different types interface device. However, there is no express or inherent disclosure in any of the figures (or in the description) in Adelstein of a manipulandum which is longitudinally moveable in a translational degree of freedom, as recited in Claims 82 and 90. Instead, the manipulandum in Figures 1-4 of Adelstein are

restricted only to rotary degrees of freedom about the described axes. In particular, Figure 1 shows the manipulandum G mounted to the ground at point H and is therefore unable to move longitudinally through point H along the translational degree of freedom. In addition, the manipulandum shown in Figure 3 is unable to move along the longitudinal axis through point j_5 due to the connecting bar between j_4 and j_5 . Further, the interface device shown and described in relation to Figure 6 in Adelstein does not teach or suggest that the manipulandum is moveable along the longitudinal axis. In fact, Adelstein expressly states in the paragraph under the heading, “HARDWARE IMPLEMENTATION” that the device in Figure 6 is modeled after the configuration shown in Figure 3.

Claim 82 recites, *inter alia*, a linkage coupled to the manipulandum, the linkage configured to allow the manipulandum to move in at least two rotational degrees of freedom with respect to ground, the linkage further configured to allow the manipulandum to move in a translational degree of freedom through an aperture of a portion of the linkage along the longitudinal axis, the linkage including a plurality of elements, at least a subset of elements from the plurality of elements being flexible and moveable to allow said manipulandum to move in at least one of said at least two degrees of freedom with respect to ground.

Claim 90 recites, *inter alia*, a manipulandum having a shaft oriented along a longitudinal axis and configured to be moveable in at least two rotational degrees of freedom about axes of rotation with respect to ground and a first member coupled to the manipulandum and having an aperture configured to allow the manipulandum to move along the longitudinal axis in a translational degree of freedom with respect to ground

As stated above, Adelstein does not expressly or inherently describe a manipulandum oriented along a longitudinal axis and moveable along the longitudinal axis in a translational degree of freedom. For at least these reasons, Adelstein does not teach or suggest each and every element in Claims 82 and 90 and withdrawal of the rejection is respectfully requested.

Claims 83-89 are dependent on Independent Claim 82 and Claims 92, and 102-106 are dependent on Independent Claim 90. As stated above, Claims 82 and 90 are allowable over Adelstein. Accordingly, Claims 83-89, 92 and 102-106 are allowable for being dependent on allowable base claims.

Rejection under 35 U.S.C. § 103

Claim 89 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Adelstein as applied to claim 82 further in view of the article by R.L. Hollis et al. entitled “Lorentz Levitation Technology: a New Approach to Fine Motion Robotics, Teleoperation, Haptic Interfaces, and Vibration Isolation” (hereinafter “Hollis”). This rejection is respectfully traversed.

However, Claim 89 is dependent on Independent Claim 92. As stated above, Claim 82 is allowable over Adelstein. Accordingly, Claim 89 is allowable for being dependent on an allowable base claim.

New Claims

The Applicants have added new Claim 106 to the present application. The Applicants believe that New claim 106 is fully supported by the specification and no new matter has been added. Allowance of new Claim 106 is respectfully requested.

Conclusion

It is believed that this reply places the above-identified patent application into condition for allowance. Early favorable consideration of this reply is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,
THELEN LLP

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